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REPORT

ON A

SURVEY

OF THE

RIVER THAMES

FROM

BOULTER'S LOCK to the CITY STONE near Staines

AND ON

The beſt Method of improving the Navigation
of the ſaid River, and making it into as compleat
a ſtate of perfection as it is capable of.

By ROBERT MYLNE, F.R.S. Engineer.

Ordered to be Printed 24th August 1793.

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BRITISH MUSEUM

REPORT

OF THE

State of the Navigation of the River Thames, from Boulter's Lock, to the City Stone; and the beſt Method of improving the ſame.

LONDON, Auguſt 20th 1793.

TO THE COMMISSIONERS OF THE NAVIGATION OF THE RIVERS THAMES AND ISIS IN GENERAL MEETING ASSEMBLED.

GENTLEMEN,

I received a Copy of Your Reſolution of 28th June laſt, wherein you deſire, I ſhould "Survey the River from Boulter's Lock, to the City Stone; and to "report the beſt mode of improving it."

And another Reſolution of 13th July, was tranſmitted, whereby I was deſired, "to attend a Meeting on the 2d "Auguſt, to receive your Inſtructions; "and to fix a time, when ſuch Survey "could take place, and a Report thereon to bemade."

I attended you accordingly, on the 2d Auguſt, and, after ſome explanati-

ons, received inſtructions, " to ſurvey
" the preſent ſtate of the Navigation of
" the River Thames, from Boulter's
" Lock to the City Stone, and conſider
" of the beſt method of improving the
" ſame, and making it into as compleat a
" ſtate of perfection as it capable of."

AGREEABLE to theſe ſeveral requeſts and Reſolutions, I have made a Survey of that length of the Thames, which extends from Marlow to Staines Bridge; chooſing to inveſtigate the then relative ſituation of the Waters; above and below, the extent in Queſtion; to form a better Judgement of that length, which is the immediate object of this Enquiry.

I was attended, agreeable to your Orders, by Mr Davis, (land Surveyor, practiſing Engineering,) who had made two Reports to You, on that ſubject; and by Mr Treacher, (the Surveyor of all the diſtricts above the third;) who had reported to you, his Opinion on the ſame matters. I was attended alſo, by Mr Clark (the Surveyor of the 2d. and 3d. diſtricts,) whoſe immediate duty is, to take Care of this length of the River; and who has alſo given, his ſentiments on the ſubject, and on the particulars of Mr Davis's Reports.

I have been furniſhed with the ſeveral Papers, above mentioned, and ſtated in your Reſolutions; and, I employed an Aſſiſtant, to make ſuch drawings, as I found were neceſſary from the View taken, and, from the nature of the Objects, which preſented themſelves for enquiry.

The Survey and Section of the River, made by Mr Brindley in 1770, (drawn by Mr Whitworth, and publiſhed in 1771;) is now, in every Perſons hand; and to this, I had recourſe, for much information.—I mention this, as, on a compariſon of that ſurvey, with the objects and parts which it repreſents; there has occurred, in the lapſe of 23 years, conſiderable and very great alterations, between Boulter's Old Lock above the Mills, and Staines Bridge.

Many of theſe alterations, are ſo much for the better, that I think it appears now, there has been conſiderable improvement made in this Diſtrict.

I am to give my ſentiments to You, on a part only, of the Thames, which has long been the immediate object of a particular Committee inſtituted for that purpoſe; yet, as I am addreſſing myſelf to a General Meeting, whoſe Juriſdiction extends, from Cricklade to the City's diſtrict near Staines, I purpoſe to do it, with an Eye, to its connection with the Parts above and below it; and to the General good, of the whole intereſts, involved in this diſcuſſion.

You were pleaſed to ſay, I had full Powers to conſider it, in every Point of View without reſtraint.

There has been eſtabliſhed, in former times, a fine head of Water at Boulter's; by which, almoſt all the bad Points and Difficulties, from thence up to Marlow have been done away. And, when the New Pound Lock was built, about 20 years ago, the tranſit of Veſſels downwards, from that head of Water, was rendered perfectly eaſy, compared with, that of, and by means of, the old Flaſh Lock, and all its clumſy Apparatus.

From the tail of this New Pound Lock, to Staines ſtone, and the City of London's diſtrict, it is 15 Miles and 1 furlong.—The whole fall, compoſed of various declivities, is in ſhort water time 28 feet.

When the River is full of Water, up to the general level of the Lands, or any thing above that, it is not fit for navigation, as the Currents are violent, and the depth exceſſive.

When Floods and Inundations ſubſide, to half bank high, and below that level, down to what is called a Flaſh Water Level, (being a certain ſtandard aſſumed, from long Practice and uſage,) this part of the River, is eaſy of Navigation, for all ſorts of Barges and Craft.

The ſtandard draft of Water, which is now eſtabliſhed for the largeſt and deepeſt loaded Barge, is fixed at 3 feet 10 inches that is 3 feet 9 inches for the Veſſel, and 1 inch for the leakage-water therein.

When the Waters of the River, fall in dry ſeaſons, to various depths below that ſtandard, in and upon, the many Shoals, which exiſt in this length of the River; all Navigation ceaſes, unleſs it be, for light Craft drawing leſs water; or, for large Barges, which do not load, to the full extent of their burthen, and draft of water reſpectively.

When the whole extent of the Year is conſidered, the ſeveral portions of the firſt caſe of Floods, and the laſt I have ſtated, being added together, occupy, as to extent of time; one half, on a fair allowance and calculation.

To improve the Navigation during the latter caſe, is the object deſired; and to do it, in ſuch a manner, as thoſe works neceſsary for that ſole purpoſe, ſhall not annoy or be an injury to the very ſame navigation, during the ſecond caſe, or to the valuable Lands adjoining in the firſt caſe, is the greateſt of all difficulties.

It is ſo difficult, to combine the effect of any given Piece of Art, placed in the bed of the River, or of Works done for it, operating in ſuch a manner, that while they procure a Remedy for Evils, in one caſe, they ſhall not injure the good qualities of it in another, when it is naturally in a good ſtate of Navigation; it is ſo difficult, I ſay, that an Artiſt, attempting it, muſt often heſitate, and treat the ſubject with a gentle hand.

The Law, as it ſtands, forbids any Locks to be made or eſtabliſhed, between Maidenhead

Bridge, and the City of London.—I underſtand this to be; that no Pound-Locks (or Turnpikes as ſometimes this modern and beſt of all inventions, are called) ſhall be ſet down, in and acroſs the preſent bed of the River; and in this view of the law, and of the River, I heartily coincide.

From Boulter's Pound-lock, to the two ſudden turns of the River, oppoſite to Clewer Mill, called the South-hope, There is not the ſmalleſt neceſſity, for eſtabliſhing ſo expenſive a remedy, to the Evils in that extent, as Pound-locks.

So it is, with reſpect to the length or diſtrict from Eton Wharf to Staines.—But beween the upper end of South-hope, and the lower end of Eton Wharf, paſſing under Windſor Bridge, there are ſo many, and ſuch very bad impediments; that no common Remedy, or any Works of Art are applicable, except reſort is had to the Invention of Pound-locks.

And the worſt of it is, that the greateſt of theſe impediments, are owing to things and matters, totally out of your Juriſdiction, and very ſerious in their nature.

The whole of the River Waters, in time of Floods is forced through Windſor Bridge; hich, altho' 165 feet long, only, is incroached pon, by Piles, Projections, and Rubbiſh on e Shores, at both ends of it. — And, as the umſy Piles, which ſupport this Scaffold, are many, much obſtruction is created, and there is, but one opening fit for a Barge to paſs.

The eſtabliſhment of an Engine or Water wheel, to ſupply Windſor Caſtle with Water (with the Cut leading thereto,) is a diverſion of ſo much Water, from the navigable Stream, and tends to leſſen that, which is too little.

But yet, this eſtabliſhment, tho' inadequate to its own purpoſe, and altho' it is injurious to the Navigation, muſt be maintained in ſuch force and power, as it now happens to be poſſeſt of. — It appears to me, to have been an artificial Cut originally; and an Evil attends on it, that it carries off, a certain part of that Flaſh Water, which is brought down for the River Navigation, ſolely, from the Upper Diſtricts.

Windſor Bridge ſhould be rebuilt of ſolid materials, and with the largeſt poſſible apertures.

The buildings, at the South end of it, ſhould be all taken down, between the Lanes and the Buttment; and a clear towing path, eſtablished on a wharf along the ſhoar, for 150 Yards, above and below it.

There is depth of water enough, in the middle opening of the Bridge ; yet, it has been once known, to have been 19 in. leſs, than I found it. There is not headway enough, under the ſcaffold Part, for Barges to paſs in Common floods.

If his Majeſty, were pleaſed in gracious condeſcenſion, to raiſe water to the Caſtle, by the eaſier Powers of modern Art, and eſtabliſh a ſmall Fire Engine, (on Boulton and Watts conſtruction,) in the ſkirts of the Town and nearer its buſineſs, it would ſoon be found, to be done at half the Expence; and the certainty, of being well ſupplied in the dryeſt Seaſons of the year, would take place of the preſent ſcanty, and ſometimes (as lately) deficient ſupply.

In this Caſe, the Cut could be fitted up, and the towing path carried cloſe to the Edge of the Stream.

Another Point, below the Bridge, is another Cut and water Wheel, called the Town's Water Works.

This is, a more ſerious deduct ion of Water, in ſhort water time; and part of Eton, and all Windſor Town depends upon it, for the ſerious article of ſoft water. — It is private property, eſtabliſhed by Lease, of 50 years to come, on ſome manerial rights.

The quantity of buſineſs done, in proportion to the quantity of water moving it, is very ſmall indeed, and might have a like remedy.

Another Cut, cloſe bye to this laſt, carries ſome little Water out of the River alſo, but not of any conſequence. It was formerly a Mill Stream, I am told, belonging to Eton College.

I have mentioned theſe things early, to clear the main Queſtion, of the Improvement of the River, of matters which are out of your Power, to touch upon or any ways to be modified, in the advice I have to ſubmitt.

Leaving the Bed of the River to itſelf, there have been two propoſitions made to you, by Meſsrs. Treacher and Clark; one, to avoid all the Difficulties and Shoals, between Surley Hall Publick House, and the lower end of Clewer Mill ſtream; and the other, to avoid the Shoaſs between the upper End of the King's Cut, and the lower end of Eton Wharf.

Both theſe leave all the Difficulties between the lower end of Clewer Stream, paſſing through Windſor Bridge, to the Upper end of the King's Cut, where they are.

The firſt Propoſition, is to convert Clewer Mill Stream, into a Navigable Cut, fit for the largeſt Barges. And by a Pound Lock near to, and abreaſt of the Mill, to conduct the Craft into the deep water, and in a ſtraight reach of the River, pointing to Windſor Bridge.

To do this; the ſaid Cut or Stream muſt be greatly widened, in almoſt the whole extent of it; It muſt be deepened at ſome Places in the middle, and along the whole extent of both ſides of it, to 4ft. 6in. during the working of the Mills; and it muſt have a new Bridge over it; with ſome expenſive works, and a ſingle Pair of Gates at the Upper end of it.

The Pound Lock would pen, in ſhort water Time, four feet, when the Mills ſtand ſtill, and only three feet, when at full work.

I need not ſay, that the intereſt of working the Mill, would be in oppoſition to that of the Navigation; altho' I am convinced, while it was in the poſſeſſion of the preſent worthy Occupier, it could not poſſibly be in better hands.

The Tail of the Cut, below this Pound Lock, would be very difficult to keep clear, from Gravel; as the place where it is to be made to fall into the River, is juſt at the loweſt turn of the South Hope or Winding Shore, where a conſtant, but ſlow and gradual alteration of the banks, is taking place.

To give effect, to this Cut and Pound Lock, it is propoſed, as a neceſſary Appendage; that a Dam or Weir, ſhould be run acroſs the Bed of the River, and at right Angles with the Stream, ſomewhere, near to Boveney.

The Idea of ſuch a Weir, is taken from thoſe ſmall ones, of a like nature, in the Upper Diſtricts of the River, between Eynſham Bridge, and Leachlade.

Whatever may have been made in thoſe Quarters, where the River is ſmall, compared to it, at this place; I am confident the Country could not bear ſuch an eſtabliſhment here, for the reaſons I have aſſigned already.—A Weir, to have its Tackle put down and taken up, by Men, during all the Viciſſitudes and Changes of the River, is a thing, from which, much good could not be obtained, and much injury, to Craft and to the Lands, would certainly happen. — Mr Davis's propoſition, of having a Hedge faſtened down, with ſmall Piles to the bed of the River, and backed with banks of Gravel, in a ſloping direction contracting the navigable ſpace towards the lower end of it, like ſome of theſe eſtabliſhed for Buck-fiſhing; would never ſtand the impetuoſity of raging floods, and the violence of blows and rubs, from that ſort of Craft, which would chooſe to go down the Stream on theſe occaſions.

If the Parts of ſuch a Hedge was made ſtrong enough, to take proper hold of the bottom of the River; that very ſtrength might be of prejudice, to the bottom of Veſsels, rubbing on them or touching it.

The other propoſition below Windſor, is to make the King's Cut, in like manner into a navigable Stream, with a Pound Lock near to, and abreaſt of the Water wheel; to do this, the Cut muſt be greatly widened, and much deepened, and the outer bank muſt be raiſed ſo high, as to keep out all floods whatſoever; otherwiſe, it would be liable to be filled with ſand and ſmall Gravel; the removal of which, would be a conſtant expence; and, it ought alſo to have a ſingle Pair of Gates, at the upper end, for the purpoſe above mentioned.

Now, the hard fate of this propoſition, is, there is not ſpace of Ground ſufficient for this eſtabliſhment, and its neceſsary Appendages.

The Pound Locks, for theſe two Propoſitions, would coſt a good deal of Money; altho', they would not have much Pen of Water to form.

They don't reach, the whole of the Evils, in and about Windſor, from Surley Hall to Eton Wharf.

The whole fall of the River, from Surley Hall to deep Water, near Black-Potts Iſland, at the Tail of the King's Cut, is 7 feet 10 inches. — The fall gained or leſsened, by the Clewer Mill Stream Cut and Pound Lock, would be only 3 feet, (when the Mill was at work,) and the fall, gained or leſsened in like manner, by the Cut and Pound Lock, in the King's Stream, would be 2 feet 9 inches.— So that, the whole gained by theſe two propoſitions, detached as they are, and at a diſtance from one another, would be 5 feet 9 inches; or not quite ſo much, as there is a fall at preſent, from the Cobler Point, to the King's Wheel, not reckoned.

Theſe two Propoſitions get the better of all the difficulties between Surley Hall and the upper end of South Hope winding turns, but all the Evils of Windſor Bridge, and of the length up to the lower end of the South Hope, remain in full effect, and I cannot ſee any way of mending them, to any great degree, much leſs to get quit of them, altogether.

Having, in this manner, collected all the materials neceſsary to form a Judgement, on this, the moſt ſerious and difficult portion of the River, under review and diſcuſſion; and having ſeen that there is nothing, but a choice of difficulties, which ever way the Queſtion is ſtated; another method has occurred to me, as the moſt uſeful and effectual; all intereſts and difficulties conſidered. — Before I explain myſelf on this head, I would have it underſtood, that every Improvement ſhould be made, to open and clear the bed of the River, from Surley Hall to the Tail Water or lower End of the King's Cut; and, that ſeveral other matters ſhould be done, more, than I have yet mentioned; all of which, ſhall be detailed in this Paper, when I come to ſtate the various detached Articles, to be done in the whole length, from Boulter's Lock to Staines.

The only Way of joining together, the deep Water, above all the difficult Parts of the South Hope winding turns or Shore, to the Pool or deep Water below Eton Wharf, is to make, one Cut only. The length will be One Mile, One Furlong and an half, and the Fall of water, is in that length five Feet.—The length by the River, is One Mile, ſeven Furlongs and an half; a length, of three quarters of a Mile, being ſaved in two.

The Map annexed, which has been carefully taken, ſhews the whole extent of the Country, from Surley Hall to the Black Potts Iſland; —It ſhews alſo the two Propoſitions, in the Clewer ſtream, and in the King's Cut. — It ſhews alſo, THIS CUT, which I am now ſubmitting to you.

Thit Cut muſt have a Pound Lock adequate to the ſize of the largeſt Barge, about 130 feet long, and 19 feet broad; and that, placed at the lower end, cloſe to the deep Water of the Thames, where it has not been known to change in the memory of Man.— I propoſe the Banks of it, to be a little above the higheſt floods known, with a Towing Path on both ſides of it, fenced off from the Lands.

It will be neceſsary to have, a good and large Bridge over it, for the Slough Turnpike Road, with an Arch at each End under it, for the Towing Horſes.

I propoſe, a ſingle Pair of Gates, with draw Gates or Cloughs therein, to prevent the bad effects of all flood waters in times of general Inundations. And, at the Corner or Point, dividing this Cut from the Stream of the River, there ſhould be a ſtrong Cutwater, run ſome way into the River, in Order to protect the mouth of it, and alſo the bank of the South Hope Shore, which, below this Point, ſuffers extremely by the land being undermined by the Current and tumbling into the River Annually, to the great Annoyance of the diſtricts below.

There ſhould be formed, a back drain or ditch, 15 feet wide along the Bucks ſide of this Cut, and the bank thereof to drain the lands adjoining into the Thames below Eton wharf, Theſe lands have a very imperfect drainage at at preſent by the water-courſes and ditches being landed up: and, the arches over them being very inadequate, in times of Floods; by which imperfections, theſe land-waters are forced at Times into the Thames by the Dorney River. — This convenience, I conſider a great matter in favour of the Lands adjoining.

I propoſe THIS CUT to be 55 feet wide at leaſt, and Six feet deep, that the largeſt Barges may paſs one another with eaſe, and hale thro' it, with few Horſes, even when full loaded, at low Water times, in the River, by having 14 inches of Water under the bottom of the Barge. — I propoſe ſome wide Parts to be made in it, that Barges, not in actual uſe, may lye in it ſafe out of the wear and tear of the River. — I propoſe, a large Dock ſhould be made in it, ſomewhere on the Weſt ſide of the Slough Road; that Goods may be ſhipped or landed, which have not to go into Windſor Town, or over Windſor Bridge. — And by theſe means, render, that paſſage acroſs the River, free and unburthened, of Part of its Incumbrances.

I propoſe no Work of any Kind, acroſs the natural bed of the river below the Mouth of this Cut, but to leave the river, to its full Effect, in times of Inundations, in the ſame manner as it has always been. — I mean free of Weir-Locks, Hedges, or any thing; that would tend to impede or deaden the Velocity of the Stream, in Floods. — I conſider the Eſtabliſhment of ſuch Works, where they have not been handed down to us, by time immemorial, to be nuiſances and contrary to the Law of the Land; as well as againſt the Spirit of the Particular Law, in this Caſe, made and eſtabliſhed.

This Cut, and without ſuch an Appendage in the bed of the River, does not militate againſt either; and might be put in execution, I apprehend, under the authority of your preſent Powers; altho' it would be right perhaps, to take New Powers relating to the leſser matters, I have mentioned.

I propoſe the lower Cill of the Pound Lock ſhould be laid 4 feet 6 inches, below the loweſt Water Level, of the Short water Times. — And that the whole Eſtabliſhment ſhould be ſuch, that Barges may paſs into, and out of it, in the ſhorteſt water Times, and during all the other Periods, of navigating the Thames, reſpectively.

All barges diſcharging their goods &c. at Windſor wharfs, and the bridge foot will be able to do ſo, the ſame as before, whether they come from above or from below. — And all the Barges, whoſe Voyages are deſtined to parts, above Windſor will have a free ſtrait Line to follow, without adding to the confuſion at Windſor Bridge and Wharf. — It is true, the Corporation of Windſor may loſe, ſome trifle of revenue, ariſing from two Shillings each time, their two Rollers &c. on the Wharf, are uſed, to bring the Craft up, to the ſaid Wharf. — Of all the Dangerous, Diſagreeable manœuvers, I ever ſaw in my Life, that is the foremoſt. The Horſes encumber the Street, and water ſide, and delay is given unneceſsarily to every veſsel going thro' the Bridge, upwards, to a degree that entails a heavy expence in the Freight. — The length of three towing Lines muſt be put together, at this Place; and are often ſnapp'd and rendered uſeleſs.

The Horſes ſtanding in the Street, and ways adjoining, ſuffer in cold weather, to wait for their Exertions, detached, as the ſhifting of the Warps &c. require.

The liberality of the Corporation muſt be applied to, in this reſpect, and in many others, where their good ſenſe will ſee, the loſs of a little is ultimately the improvement of the whole.

The preſſure of the Buſineſs, and the general Contention among Watermen, to forward their own progreſs, through this ſcene of difficulty, generally happen on a Sunday forenoon.— For a Periodical and cuſtomary Flaſh of water, let off, from the great Reſervoir of Boulters head of Water, late on Saturday night or early on ſunday morning, (the Millers having worked all they can on Saturday and chooſing to be Idle on Sunday,) comes down the River, in ſhort Water Times, about noon, creates the means of paſſing Windſor, and entails upon this place, all the confuſion ariſing from Trade not belonging to it, in addition to its own.

It will be aſked, (as it has been,) what effect ſuch a Cut and Pound Lock, as herein propoſed, will have on the Caſtle, and on the Towns-water works.

It is clear, that in time of Floods, and all other Periods when there are 4 feet natural water, over the Shoals, they cannot be affected in any ſenſible degree. — In ſhort water time, by as much as the Engine wheels retard the velocity of their Streams, ſo much the more, does the Volume of the River-ſtream paſs by its eaſy tendency, down its own bed.

They obtain a certain ſhare of all Flaſh-Water. — And if any means are uſed, to make better depth of Water at the mouths of their reſpective Cutts, ſo much more Power they will obtain to perform their purpoſe.

It will be natural to expect, however, before any complaint can be entertained on that Head, that, theſe Engines and Cuts ſhould be put, in the beſt working order; for, their preſent ſtate require it.

The quantity of Water, required to paſs the largeſt Barge and its Punt, thro' the Lock, will be 12,750 Cube feet, and this will be the Caſe only, in the ſhorteſt water time, when there is the greateſt fall, in this length of the River; — At all other times, it will require leſs. — The Number of Barges, going upwards, and chooſing to go through it, will not be many in a day. Suppoſing them Ten, in the 24 Hours, the whole conſumption, is 127,500 cube feet of water.—Barges going down are generally light, and will not trouble it much. They will take the Bridge paſsage. — There are ſome to be expected, however, from Parts to the Weſt of Oxford, and from the Canals; that will no doubt, take the advantage of ſuch a convenience. But I include them all, in the Average number of Ten per day.

The Evaporation from the Surface of the Cut is not worth counting. The Leakage of the Lock, when in good order will be 12,750 per diem, when the pen is at the higheſt.

Now all this, is so ſmall, compared to the great volume, of the whole River Thames; and that volume is ſo large compared with the ſmall quantity of water, moving each of theſe Engines, reſpectively; that this circumſtance and matter, need not weigh at all, in the Scale of this Queſtion.

Theſe Engines conſume and expend, and deprive, the navigable Stream, at this interesting Place, of 86 times, more than this Pound Lock will do. — Windſor Caſtle and Town have had a large ſhare of the Stream, to ſerve them reſpectively, with water. The River itſelf may ſurely help its navigation with a little, without complaint; out of its remaining quantity, to forward and promote its own benefits; and that only, when it is diſtreſsed.

Theſe two Eſtabliſhments have other and better reſourſes, in caſes of defect; the River Navigation has NONE, but what is to be derived from itſelf, and the proper Uſe of its own Water.

Theſe has been another Propoſition ſuggeſted, to cure the defects of this part of the River, and that was to have made a Navigable Stream, down the back Stream, which begins at the Upper turn of the River of the South Hope, and ends at the lower Part of Ward's Meadow, near to the Brock-houſe Clump of Trees. This has been propoſed to have been made, without a Lock in the ſaid Cut, or a Weir-dam in the bed of the River. — This would have divided the Quantity of the running Water, and made that leſs, which is too little at preſent.

This Back ſtream ſeems to have been the antient bed of the River, at ſome long, by-paſt Period. — To make a Cut here, under theſe Circumſtances, would have been to make things worſe, inſide of better, and, if a Pound Lock has been put into it, it would have cured, but a ſmall proportion of the Evils attending the paſsage through Windſor.

HAVING cleared my way, and treated of the greateſt maſs of Difficulties, in the Navigation, that exiſts between Boulter's and Staines: I ſhall now proceed, to diſcuſs thoſe of a leſser nature, according to their ſeveral Qualities and reſpective ſituations.

But to underſtand what, I am to ſay, in each point, I muſt refer to an inspection of the Table of ſoundings, in the whole length; as they are ſtated in the Appendix.

At eleven o'Clock, Saturday 4th Auguſt, there was Seven Inches of Water running over at the Waſte Weir at Boulter's Old Lock.

The Water was 7 inches below the higheſt gauge mark, fixed by the Commiſſioners as a Standard, at the New Pound Lock.

The Pen, made by the Pound Lock, was 5 feet 6 inches. Ray Mills were working two Pair of Stones and dreſſing Gear. — Taplow Mills were working three Pair of Stones. — The Cotton Mills were under Repair. — On begining the Examination, I found only 3 feet 4 inches on the ſuface of the lower Cill; — and ſome Timber, fixed on the Apron, was one inch higher; ſo that the Gauge of this entrance, was then, 3 feet 3 inches, only.

The bottom of the Cut, was only 3 feet, in ſome places; and this ſeems to have been, the Gravel of its bottom being waſhed in, occaſionally, by the Upper Mill Tail Water.

It ought to be conſtantly watched, and cleared out. — The Water was higher to day by 5 inches than 23d. July. In conſequence of this, no Barge can get into the Pound Lock, without waiting for the opportunity of a Flaſh; and that can only be afforded, twice a Week, in ſuch dry Times. — This Circumſtance is a radical Evil in this Lock; for, if a Barge has got up, to the Tail of theſe Mills, by means of a Flaſh, expended, ſhe cannot get in, without having another for it alone, or waitting three days for another Flaſh, and all the confuſion of theſe Periodical Ones. — Some contrivance muſt be applied to get Craft, into this Lock; for whatever is done below, in ballaſting and clearing away Shoals, ſo much the leſs Water there will be here. — It ſeems neceſſary a Jettee of Pile-planking &c. ſhould be run a little way down from the Point, which divides the Mill Stream from the Pound Lock Stream, or Cut. — And, there ſhould be eſtabliſhed a Flaſh common Lock, with a Swing Bar and Tackle, to put down and take up, like that at Marlow; but, having the Cill of that too, 18 inches lower than the other.

Between this place, and Maidenhead Bridge, there are ſeveral Places, where there is only 3 ft. 4 in. Water, and they have been ſcoured and ballaſted away repeatedly.

The Cauſe which produces this, is the vicinity of the Mills and the Waſte or Tumbling-Weir; which, in floods muſt ſend all the Gravel down to theſe ſituations, into quieter Water.

To promote this, and keep theſe Shoals from growing again, there ſhould be a gauge Weir of Planking and Piles, put down, in and at the Upper end of the back Stream, which paſſes between the upper Iſland and the Berkſhire ſide; and there ſhould be two Towing bridges, to conduct the Towing Path into and thro' the ſaid Iſland; as the Navigable ſtream, is at too great a Diſtance.

At the lower Island, a Channel has been ballaſted deep enough, on the Bucks ſide, fit for Barges to paſs; but, as the towing path is on the oppoſite side, The towing horſe drivers and Bargemen, will not be induced to go that Way. This being the caſe, I think a low Weir ſhould be put acroſs it, at the upper end of the Island, to throw all its portion of water, into the navigable Stream, now uſed, and that will help the boats over the ſhoals, above-mentioned.

At Maidenhead new Bridge, there is leſs water under it, than in the parts above and below it. The Builders have thrown in Chalk and Stone, to raiſe the Bottom, to a certain level.

From that bridge, down to Bray, there is very good Water; but, between the mouth of Holy-Port River or brook, and the mouth of the Mill Stream below Bray, there is a very bad and inconvenient turn of the River; for the Towing Line and Horſes. — The Path is on the Buck's side which happens to be the convex side, at this turn or large ſweep. — The Navigable Stream lays cloſe along Bray, on the Berks side and there is a large, broad and flat, Shore of Gravel, between both, with great Part of it under Water.

The Barge is obliged to ſteer, at an Angle of 45 Degrees almoſt, from the direction of the Line. This requires a great Power of Horſes, and a greater than is neceſſary, at other Places.

It is a Point very Difficult to apply a remedy to. — There is a deep Channel, between this Shoal of Gravel and Sand, and the Bucks side, for the extent of three fourths of its length, and that at the lower end of it. — If this Channel was cut thro' in a ſtrait Line, for the Navigation, it would ſoon be filled up again, by the operation of the natural Stream. The only Remedy, or rather the leſsening of this Evil, would be to make, a Towing bridge, acroſs the lower end of this deep Water, and to conduct the Horſes upon the Gravel bank, at ſhort water Times; — And nearer to the ſituation of the barge, at each Point of its progreſs upwards.

From thence to Amerton lower Farm there is tolerable good water; yet a barge muſt drag heavy in going up. — Below that place, there is an Eyet or Iſland, and a side Stream, between the navigable Channel and the Towing Path on the Buck's side.

The side Stream ſhould be immediately made, into the Navigable Stream, for the greater Eaſe of Towing; and, to improve the paſſage thro' it, as well as increaſe the Depth of water above, a low Weir ſhould be run acroſs the preſent Channel in a ſlanting direction. —

At Monkey Iſland, the ſame purpoſe has been effected, and it anſwers well.

Above Water Oakly or Down Place, the ſame good purpoſe has been effected there.

From Amerton to Weir, or Shutter's Fiſhing Bucks, there is tolerable good Water, the whole way, except a few ſwellings, here and there, which ſhould be ballaſted, when Towing Paths want repair.

At the weir, called Shutters Fiſhing-Bucks, there is a pile in the middle of the River, and a wattled hedge, in a ſlanting direction down the River, to the Bucks; — which are on the Buckinghamſhire ſide of the Navigation.—And there is an Eyet or Iſland on the Berks ſide, with a back Stream behind it, which diverts and paſſes much Water from the bed of he River. — There is alſo a bad Shoal, with leſs than three feet of Water on it, in the Navigable Stream. — To ballaſt that away, will not reach this Evil. Both the ſide Streams ſhould be ſhut up, with low planked Weirs, the Bucks ſhould be taken away; and then, if the Shoal is ballaſted, it will not encreaſe, to its preſent height at leaſt. — The two efforts, ſhould go hand in hand, elſe there is no good obtained.

From this Shoal to the Mouth of Clewer Mill Stream, there is a tolerable good Water. — But, oppoſite that Place, there is a very ſharp Current, and a ſudden declivity. — From thence, to the Upper end of South Hope or winding Shore, there is a fall of 2 feet 9 inches, in 1 Mile and 2 Furlongs. — The Water is alternately Shoal and Deep; the bottom of an undulating Figure, with one very deep place.

Clewer-mill Stream diverts a great deal of Water, from out of this length of the navigable Stream; and it is a very difficult Queſtion, to make, that which remains to it, into a tolerable navigable Water. — The Soundings ſhew the degree of the Evil, and the places, where the Shoals now are, Mr Clark ſtates to me, he cleared ſome of them repeatedly, ten times; and yet, they now exiſt in full force.

At the time they are ballaſted away, the Water becomes above them much more Shoal than before. — On the whole however, it appears to me, the bottom of the River is much more uniform, than it was in Brindley's ſurvey, 23 Years ago.

Gill's Fiſhing-bucks have been very properly removed; but, an Iſland has been removed alſo, which has widened, but not deepened the navigable Channel.

There ſhould be a great contraction, made of the River here, on the Berk's ſide; and that ſhould be done, with a long ſlope, like a gentle riſing bank of Gravel, and very broad. This would throw the Stream to the Navigable ſide, and the form of it would not injure any Craft whatever.

The Banks are high, and the width of the River at their ſurface, would not bear to be contracted.

Some more, of ſuch Jettees, being put into this ſpace, of a Mile and a quarter of the River, are the only means, of alleviating and leſsening the Evils, contained in it; but I depend moſt for obtaining relief, from the Conſtruction, of the Point and Cut-water, propoſed for the Mouth or Entrance of the NEW CUT, from this place to Eton Wharf.

The Upper end of the back Stream, from the Upper towing Bridge to the lower end of Cuckoo Meadow, ſhould be compleatly filled up. Much water is waſhed out of and from the Channel, in the Time of Flaſh-waters coming down; and the preſent navigable Channel, crooked as it is, would be deepened, by the firſt winters floods thereafter.

But the Line of the navigable Channel itſelf, in that extent, is ſo bad, from the ſuddenneſs of the two short Turns or ſweeps, which it takes, to go out of its truè direction, and then to get into it again; that an Artiſt cannot well ſay what can be done, within a reaſonable Expence.

The towing thro' the upper turn, is bad enough; but, at the lower turn, it is ten times worſe.— At the latter, the Towing-path being on the convex ſide, and the Stream being ſo violent at times, by the ſhortneſs of the ſweep; there muſt be a gang of horſes, on the Berks side, as well as on the other, to get barges round it, notwithſtanding the Proviſion of the Roller.

The only effectual way would be, to make a new Cut and bed, for the River itſelf, in a ſtraight line from the upper turn, thro' Ward's meadow, to the lower part of Cuckoo's Weir, or flat Marſhy ſhoar.

The Old or preſent bed would ſoon be landed up. — But then the expence of this, might be much better laid out, on the propoſed Cut, to Eton Wharf.

The exiſtence of Clewer-Mill and ſtream, is an unfortunate thing, for that diſtrict of the River; which extends, from Cuckoo-Weir Meadow, up to Surley-Hall.

The waters, which that Eſtabliſhment takes off, at all navigable times and ſeaſons, and which does no great ſervice to the River in times of Inundations, are a ſerious loſs to the bed of the River; eſpecially in ſhort water times.—But, this Property being too valuable, and too long eſtabliſhed precludes any idea of altering it, or doing it away.—The Worthy proprietor will excuſe its being mentioned, as it is my duty, to ſhew and State, all the cauſes of the defects in the River, before any remedies can be applied.

I ought to have mentioned, the ſame caſe, of the ſide ſtream and Mill, next below Bray, and, as that is of very inconſiderable value; if it can be purchaſed, and the upper end of it made with a gauge Weir, that too, would tend to improve in ſhort water time, and do no harm to the River in times of floods.

It is called Lavender's Mill, now a corn Mill, and was a paper Mill formerly. It was all ſhut down, and Idle for want of water. The Pen was only 13½ Inches, when the water was dead level. It cannot be of any great value. — From Cuckoo-Weir Meadow, to Windſor Bridge, there are ſeveral ſhoals, and of a bad ſort, as may be ſeen, by the Soundings. — There is a ſide ſtream at the back of the Iſland, oppoſite to Cuckoo Weir Meadow the mouth of which ſhould be ſtopt up, with a gauge Weir, of Planks and Piles.

At the tail of that Iſland, which is of great length, a line of Plank Piling, (like that at New-Lock-ſhoal below,) ſhould be run down, to the upper end of a little Iſland, next adjoining, Theſe two Works being done, the navigable Channel would be greatly improved.

Next above Windſor Bridge, The towing path comes no lower down, on the Buck's ſide, than the lower end of an Iſland; and the navigable Channel, is on the Berk's side of the ſaid Iſland. — This produces great Inconvenience. — The ſpace, between the Iſland and the Bucks ſhore, should be made deep, for the navigable ſtream; and the preſent one should be contracted in a flat manner, to deaden the tendency of the Current running that way.

A raiſed Wharf should be made from the End of the Bridge, up to the lane, to join on to the other part, now done; to keep the horſes out of the water, in winter.

I mean this, if all the miſerable Houſes, between the dirty Alley and the Wharf of the River; were purchaſed, for the Reaſons I have ſtated, and pulled down.

Below Windſor Bridge, the Toll-houſe, Gateway and Storehouſe, should, in likemanner, be cleared away; — Then Horſes could tow in a ſtrait Line upwards, inſtead of doubling, by means of the two Rollers, and going down the Shore, back again, to draw Barges up to the Wharf; to the great annoyance and danger of every Perſon reſorting there.

The Hallow way or Strand, on the Town's ſide of the Kings ſtream ſhould be raiſed, and made to End, on the ſurface of the Wharf when cleared as abovementioned, and lowered as it ought to be, in point of level.

There should be made, as ſoon as poſſible, a Towing-bridge acroſs the upper end of the King's ſtream, to carry the horſes, free of the moſt terrible of all evils, that of plunging into this ſtream, in a cold winter's Day, at the time they are extremely hot, from a long Days work; and having got thro' it, that of ſtanding ſtill in the Street and Road, waiting to finiſh their deſultory work, of-the laſt ſtage of it. — That work ſhould be done, in ſuch a manner, as not to interrupt or deaden, the velocity or power of the Kings ſtream. —

And the Bank of the River from thence downward, at preſent too low for winter's navigable waters, might be raiſed to great advantage, to both ſtreams, and to the Towing.

The Mouth of the uſeleſs, Eton-College ſtream, ſhould be quite ſtopped up. — The courſe of it might remain as a Land-mark; and a Trunk, put into the Dam, might ſerve to waſh it out, when the Thames is at a plentiful Water.

The Sections of the Towns-ſtream, and of the Kings-ſtream, ſhould be carefully taken as at preſent, and ſhould be regiſtered in your Proceedings. — And Gauge Piles and fixed Marks, ſhould be ſo eſtabliſhed; as that, there may remain no doubts, of their relative connection with the navigable Stream, and that this may always appear. — In leſs important Caſes, this is always done.

From Windſor Bridge, to the Cobler Point, the Soundings ſhew a very good Water, 4 feet, being the leaſt; and the Water was very low, being taken on Monday morning.

But, from that Mark to Eton Wharf, the depth of water is very bad indeed; ſome Parts being then ſo little, as 3 feet, 2 feet 10 inches, and 2 feet 9 inches.

The fall is 2ft. 10in, and the diſtance is but 3 furlongs or 660 yards. How to amend this extent, without throwing more water, from the navigable Stream, into the two ſide ſtreams, is the great difficulty. We have ſeen and reviewed the remedy propoſed, by means of a Pound Lock, abreaſt of the King's Engine.

The only way that occurs to me, without doing the one or the other, is to place a ſtrong Gauge Weir between the upper end of the Iſland called the Black-Potts, in a ſlanting direction over to the Buck's ſide, ending at the lower end of Eton Wharf, where a dead landſtream ends into the River. — This done in a prudent and cautious manner, proportioned to the thing itſelf, would have the effect of ſwelling the ſurface of the water up to the Cobler Point, but not above it; and the Town's water work ſtream muſt be contracted a little, as the dividing Pile of that water-courſe, is below, and not opposite to the dividing Point of the King's Stream.

This Gauge-Weir would have another good effect, to increaſe the depth of water upon the ridge, of a ſhoal of gravel, which extends; from the point of the ſaid Iſland in a ſlanting direction to the Bank at the tail of the Kings ſtream.

This ridge or ſhoal, is a very bad point; as, the Barges coming down, have to croſs over from the deep water and ſtrong Current on the Buck's ſide, to the ſlake water in the navigable ſtream in the Berk's ſide, between the Iſland and the Berk's ſhore, there is great difficulty to croſs this Ridge, to ballaſt it quite away would make leſs Water above, where there is ſo little at preſent. — But the Gauge-weir above-mentioned, being eſtabliſhed, it would remedy both the one and the other evils, in a great meaſure. — There is no fear of flood Waters, doing any damage thereby, to the Lands adjoining; and if the Town's Stream got a little more Water, than it ought, it will be compenſated, in ſome meaſure, by the Tail Water being ſwelled, upon the Water Wheel. — This too Would be the Caſe, in ſome, but in a very ſmall degree, with the King's Engine. — And, if it ſhould be affected, in a greater degree than I take for granted, it is eaſy to procure a remedy and to improve the effect produced by this Engine, by cutting the bed of the Tail-Stream, deeper, and lower down than the Ridge or Shoal above-mentioned.

To encreaſe the effect of this operation, it will be neceſſary to join, the lower end of the upper Island to the upper end of the lower Eyet or Island; by a Pile-planking, of a given height, equal to a foot Water, or what is called, a Flaſh-high-water-mark.

From this bad Point of the ſaid Ridge, there is a pretty good water, all the way to Datchet Bridge; except in a few places, which I dare ſay, may be effectually amended, by ballaſting the Shoals.

And from Datchet Bridge, there is a fine Navigable water all the way, to a place called New-Lock-Shoal.

Three Years ago, a very excellent work was done, for the purpoſe of altering the navigable ſtream, on the Berk's ſide of an Island; and, for confining all the water, in ſhort water time, to the navigation Channel alone . This, it has done effectually, and forms a pen, between the one and the other ſtream of five Inches . — The ſhoal having been ballaſted away at the ſame time, has not made its appearance again, but in a ſmall degree . — I think the two Islands ſhould be joined together, by a connecting Weir, of the ſame work ; to give more effect , to the upper one, and make more water, on the ſhoal .

From New-Lock Shoal, to an Island, below Welly brook and houſe, there is a very good Water ; but in the navigating Channel there is but three feet, at the lower end of the Island . — It is neceſſary , to place a Gauge-Weir, at the upper end of it, to confine all the water, to the uſe of the navigation, in ſhort water time .

At the Buck-fiſhery of Mr. Iſherwood , there is a like defect, but in a ſmaller degree . If there muſt be a Fishery, the mouth of it should be contracted .

From thence, there is a very good Water, except ſome places, here and there, down to the diviſion of the Counties of Berks and Surrey. And theſe places muſt be kept down, by ballaſting from Time to Time, for there is no ſuch thing, as applying a radical remedy, without doing an injury, in reſpect of the Land.

At the Bells of Ouzely Publick Houſe, there is a great defect, in the Towing Path; and that, on account of a difference, with the Pariſh.

On enquiry, it appears to me, that the Road for a ſmall extent ſhould be raiſed, at your expence only; for, when the Water is high in floods, and this place impaſſable as a Road, the Pariſh are provided with another way; and, tho' that is a little circuitous, it ſerves their purpoſe well. The Towing Horſes during high Waters can't get through this path, which is, as low as the ſurface of the River, in ſhort water time. The Road ought to be raiſed and wharfed, with drains made thro' it and under it, to carry off the Springs, which ooze in great quantity out of the Banks.

There is Plenty of materials, in the bed of the River, and near to it; ſo that, this cannot be any great expence, and will be of great Utility.

From old Windſor, to the lower End of Your Juriſdiction, there is in general a good Water, and an uniform flowing Stream; except at ſome Places, where there is only 3ft. 9in.; — Theſe may be eaſily ballaſted; and attention muſt be conſtantly held, that they are kept down, on being raiſed by winter's floods.

There is one Place however, which requires ſomething more being done; — Below Sander's Iſland, there is a ſmall Eyet, between the Navigable Stream and the Towing Path on the Surrey Shore. — This ſhould be purchaſed, and the greateſt Part of it cut away, to make the navigable Channel, between it and the Surrey bank. This would be a leſs expence, I believe, than two towing Bridges, and a Path made thro' the ſaid Eyet.

Saunder's and this little Iſland, ſhould then be joined by a low Weir, like that at New-Lock-Shoal, by which means, the Shoals above, at Elliot's Houſe &c. would be improved.

Below Millſon's Point, there is a Shoal of 3ft. 6in. water. — Above Capps's Shoal, there is One, of 3ft. 10in. and 3ft. 5 in. — Capps's Shoal has but 3ft. 4in. — Above Hythe-mill ſtream there is but 3ft. 2in. water. — All theſe, muſt not only be ballaſted immediately; as in their preſent ſtate, they ſerve as a Gauge, for all the navigation of the River, in ſhort Water Time; and Barges muſt be loaded accordingly.

But, ſomething more muſt be done, — At theſe places ſome Contractions of the width of the River muſt take place; for at all ſuch places, where shoals are reinſtated by the power of floods, the width of the River is too much, and more, then it ought to be.

From the mouth of Hythe-Mill Stream to Staines Bridge, there is a fine water; and it is ſomething remarkable, that the going or ſhutting down, Mr. Aſhby's Mill at Hythe-End, and Mr. Finch's two Mills in Staines town, makes a difference in the waters level ; of the Thames, from one to two Inches .

Staines Bridge is very happily for the navigation of the River, rebuilding on a lofty Plan, that never will impede the paſſage of high loaded Barges, in times of floods and high waters .

If the Butments were perforated, with ſmall Arches, it might produce conveniences for the towing lines &c.

In this manner, I have given you , the the detail of all works, to be done , in the bed of the River from Boulter's to Staines Stone.

From the whole fall or declivity of the ſurface Water, twenty eight feet, there is to be deducted, the five feet Pen of the ETON CUT , if that is executed ; and then , there will be, only twenty-three feet for a declivity, to be towed againſt, by horſes going upwards .

From the tail of Boulter's Lock to the upper end of the ſaid Cut , it is a length of five Miles and ſeven furlongs ; and a fall of ten feet three inches . This makes a fall of 20$\frac{7}{8}$ inches, per Mile nearly.

From the Tail of that Cut, at Eton Wharf, to Staines Stone, it is a length, of ſeven Miles four Furlongs; and a fall of 13 feet. — This makes a fall of 20$\frac{3}{4}$ inches per Mile nearly.

I have ſtated, theſe two declivities of the River, to contraſt the Proportion of their fall, with that thro' Windſor. — There the length is only one Mile, ſix Furlongs, and the fall being 5 feet, this makes a fall of 34¼ inches per mile nearly.

Providence has allotted a certain quantity of water, to run in the bed of this River; — Which is not in the Power of Man to encreaſe. — In ſome places, it has been diminiſhed, at partial and particular Places, in former times, when the Value of it to internal Commerce, was not ſo well underſtood, and had not ſuch great and preſſing demands for it. The ſame Quantity which runs down, from Boulter's to Windſor, and from Windſor to Staines, at 21 inches nearly per mile, has to run thro' Windſor, at the rate of 34¼ inches nearly per mile. — It follows of Courſe, there cannot be the ſame depth of water; and the crookedneſs or tortuoſity of its courſe, and the other impediments above-mentioned, makes the depth, ſo good as it is; and, that we have ſhewn, is very bad. — If any Cuts are to be made, to eaſe the River of its difficultes, I ſincerely recommend the ETON ONE, as the eaſieſt of execution, leaſt expenſive, and having no Mill Intereſt, or Fiſhing Weirs, to contend with, when it is in uſe. — With reſpect to any part, of the lengths above-mentioned above it and below it, I think they are capable of being much improved; and perhaps, if I had had, a little more Time and Leiſure, further inveſtigation might have produced more, than I have been now able to ſtate ; — But, I have ſaid all, that has occurred to thoſe who attended, as well as to myſelf.

If all the large Barges were ſtinted, in their draft of water, when full loaded, there would then be no difficulty in navigating this River, in reſpect of depth, in ſhort water time. The Capital inveſted in the preſent large Barges is of great magnitude, and a large Barge is always better found, in all reſpects, than a ſmaller one. There is more ſafety for the Articles carried. — In order to make the River, adequate to their draft of Water, recourſe is had, to the meaſure of Flaſhing. — This practice, tho' well underſtood, has not been correctly ſtated.

From a great way up the River, and above Oxford, a quantity of Water is occaſionally held up, for ſome time, by Mill-dams, Weirs, and other Pens. — It is let off, by common conſent, from head to head; and a certain portion is added to it, as it goes along from Stage to Stage. There is, a Univerſal Knowledge of its progreſs, known throughout the River.

It is ſomewhat, in Figure, like two wedges placed, head to head, and moving upon the inclined Plane, of the uſual ſurface of the River, in a natural State; and the thickneſs of it, is about 10 inches, in additional Depth, at its Apex or higheſt Part; — This top of the wave moves, I believe, at the rate of 1½ mile per hour. — In its deſcent, it carries along with it, all the Barges, of a large draft of Water. — And they, will even at times, outſtrip its rate of going, if the men are attentive and diligent, by the ſuperior weight of their own body.

The Voyage downwards, is, by this means, and by their being rather light loaded, rendered tolerable eaſy and certain, in ſhort water Time.

Not ſo, with the Voyage, upwards: in as much as, this great wave of Flaſh-water, is ſoon paſſed thro' by the Boat, and very few difficulties, is ſurmounted in the duration of one flaſh. — They are more heavy loaded, in going from London, and they muſt wait, for the repeated Flaſhes, coming down, which is generally twice a week, and ſmaller ones ſometimes intervening.

This, is the great Cauſe of the enormous expence of Freight. — And another bad conſequence, to the natural State of the River, enſues: — The River becomes emaciated, immediately after the Flaſh is paſt off, and thus an evil ariſes, in a certain degree, from the good that has been partially obtained. — It frequently ſo happens, that the River is navigable only by flaſhes, when they come to be, too frequently demanded and taken. — And, from thence comes, another and a ſtrange evil, that weak minds, ſeeing the ſucceſs of a Flaſh, are induced to think, and to conclude, Flaſhing is the beſt of all Navigation.

The extent of the whole River Thames, is by theſe means, become ſo complicated, in all its various ſtates, Stages, and periods, of different ſorts of navigation, according to its numerous and combined varieties; that it is a profeſſion, not eaſily acquired, to manage the the different parts of a Voyage, and the reſpective difficulties, it has to encounter.

Time and Money is loſt, and that, in an uncertain degree; and embezlement of the Cargoe, is the only thing that proceeds, in proportion to the retardation.

You Gentlemen, as you are better acquainted with the local circumſtance, muſt be more ſenſible of other difficulties, which may not be in my power to ſtate. — I have occupied, perhaps unneceſſarily, more time than was neceſſary, for Your Knowledge of the matter, but, it is not ſo, with the Publick at large; and eſpecially with thoſe, whoſe Intereſt is that only, of paſſing thro', and not trading, within any part of this Diſtrict.

The River Thames at this place ought at all events to be ſupported and maintained in the moſt perfect ſtate of Navigation; and I truſt, the whole of theſe Works being done, it will then be, in the beſt ſtate, it is capable of. — A Voyage down, will be very eaſy except in floods and inundations; but for the Voyage upwards, there ſtill remains, much tedious loſs of Time and great Labour.

To eaſe that operation, and render the tranſit quite perfect; I hope, it will not be foreign to this Buſineſs, to ſuggeſt to you, what what occurs to me. — The Idea of making a Canal from Monkey Iſland, was a prepoſterous one; as if Reading and London were the only Points to be connected together. A much better offers itſelf.

I would recommend a Cut, to be made, from the Eton Cut above-mentioned, to the head of Boulter's Pound Lock and Mills. — The Country is perfectly Flat and fit for it. The Diſtance is only 4 miles and 6 furlongs, and the fall, from the one level, to the other in the Eton Cut, is 16 feet only. Three Pound Locks, of 5ft. 4in. each, would be ſufficient. The Expence would be ſmall, in proportion to the good obtained. — And the Craft, uſing it, ought to pay the whole of its coſt.

In this manner, your River would bear and convey the Barges, at all times when it can: and when it is impoſſible to navigate it, recourſe can be had to this Canal, or rather Cut of ſhort extent.

From Boulter's Pound-Lock, to Eton Wharf, by the River is 7 Miles, 5 furlongs; — by the Cuts or Canals, jointly it would be only 5 miles, and 1 furlong. — Two miles and an half, would be thus ſaved, that is about one third.

I ſay nothing of the Views of the City of London, with reſpect to a Canal Navigation, from Iſleworth to Boulter's. — This propoſition might perhaps induce, their Line of ſuch a Canal, to terminate in your Baſon, at Eton; for, it is as ſtrait a line as any that can be taken.

But, I forbear ſaying any more on that head. — The drawings which I have made and accompany this Paper, will beſt explain the true relation, which each Part has to the whole.

Since Brindley's Survey, the Towing Paths have been altered, much for the better, and compleated; except as to ſome low places, and that part through Windſor.

The Towing Bridges, are all in very good Order; and none are wanting, but thoſe I have ſtated.

The navigable thread Line, of the beſt Part of the Channel, has been made more unform, and changed greatly for the better.

Maidenhead and Datchet Bridges have been rebuilt on a Lofty Plan, and much better, in that reſpect, as well as others for the Navigation.

Staines is alſo in a State to be much improved; and I ſhould ſuppoſe, an Applicatioc to the Commiſſioners for that Work, would obtain two Towing Arches in the Abutments.

But Windſor, the worſt of all, yet remains. — The Fiſheries, in this diſtrict of the River, are not ſo prejudicial, as thoſe formidable ones, eſtabliſhed for Time immemorial, in the Upper Diſtricts.

In ſome Caſes, they are here, of ſome ſervice. The Bucks for Fiſhing are generally up, and out of the Water, when, for the Utility of the Navigation, in ſhort Water Time, they ought to be down, and under Water. I wiſh much, this Queſtion was agitated ; — As I am not perfect Maſter, of the Practice of Fiſhing in theſe Waters, and of the extent of the rights of thoſe, to whom they belong.

In ſhort Water Time, it would be always beſt, the Bucks ſhould be down. — It would be beſt for the Land Owners, they ſhould be, in floods, always up.

The Mills, and Engine wheels, are not many; and, they cannot work a head of Water down, as it is too much, in their Power and Practice, to do ſo, in the Upper Diſtricts.

If a Canal was made to Boulter's Head of Water, the Trade of Maidenhead and its Neighbourhood, on both ſides of the River might be accomodated with a convenient Dock, behind the Inn (late March's) at the Eaſt Butment of the Bridge.

The accurate Map annexed, ſhews how crooked, and winding, Clewer-mill Stream is at preſent. — To render it nearer to a ſtrait Line, to deepen it, and widen it; and to cut out the Stumps of old Trees, would be nearly as much expence, as the making a ſimilar length in new Ground.

By means of the ſingle Pair of Gates, at the Upper end of the NEW SHORT CUT, hereby propoſed, it could be eaſily cleared of Ice, in Winter time. — There is at times in Winter, ſhort Water over the Shoals, the ſame as in Summer.

The greateſt exertions ſhould be made now, in and for the River navigation; as it appears the Trade upon it, has increaſed, in the laſt ten years, in the proportion of 56 to 70. — And, it is reaſonable to expect, this increaſe will not only continue; but the Canal buſineſs will make great additions thereto, far beyond any expectation.

Having obſerved, by your minutes and other Papers, there is at preſent, a great variety of opinions, on the ſubject of Pound-Locks, in this diſtrict; I cannot conceive, Why it came to be thought neceſſary, that Three Pound-Locks ſhould be eſtabliſhed.

I have ſhewn, by the preſent ſtate of the River that a third, is no ways neceſſary or uſeful. — And, I think, that one good one, will, if placed where I have laid it down, ſerve the navigation more effectually, then the powers of the two, conſidered jointly.

But, above all, the landed Intereſt, and the general convenience of the Country, demands, there ſhall be left, a clear ſpace, in the hollow or bed of the River, Free of all Weirs or Dams of any ſort, acroſs the Channel and occupying the whole breadth of it. — The three Pound-locks above-mentioned, by the advice given, were to have, a Weir correſponding to each of them, acroſs the River.

I have the Honour to be

Your moſt Obedient

Humble Servant

ROBERT MYLNE, F.R.S.

ESTIMATE

OF A

NEW CUT and POUND LOCK &c.

Propoſed to be made, from a Part of the Thames above the South-hope or Winding Shore, to the lower Part of Eton Wharf; and on the North ſide of Eton College its Grounds &c.

MADE OUT AT THE REQUEST OF THE

COMMISSIONERS of the RIVER THAMES;

Auguſt 28th 1793.

Agreeable to a Plan thereof preſented on 24th Auguſt

Articles. No.		£.	s.	d.
1.	TO cutting the Canal part 9½ furlongs in length 55 feet broad at the Water's ſurface, 5ft. in depth of water, and laying the Soil to form Towing paths on both ſides at £440 per furlong - -	4180	0	0
	Carried over,	4180	0	0

	£.	s.	d.
Brought over,	4180	0	0
2. Building and conſtructing a Stone Pound Lock; at the lower end of the ſaid Cut, 130 feet long, and 20 feet width at top, in the Chamber; done with Brick and Stone, and Oak Timber, with wing Walls Guard Piles, and extenſive Apron; and with a lower Cill 4 feet below, the loweſt water level at Eton Wharf. Penning the water to a dead level, of 5 feet in height. at £440 per foot in height - - -	2200	0	0
3. Building a ſingle pair of Gates with Butment Walls, and wing Walls thereto, at the Upper end of the Cut; the Cill thereof to be 4 feet below the low Water of the River, without a Flaſh, with guard Piles & cut water next the River on the lower ſide; with a ſwing Bridge to paſs the Towing Horſes and foot Paſſengers. - -	600	0	0
Carried over,	6980	0	0

	£.	s.	d.
Brought over,	6980	0	0
4. Building a New Bridge, of one Arch over the Canal, for the Slough Road; with ſmall arches at each end for the towing Horſes, and with wing Walls, &c. in an ample manner, the expence of widening and altering the preſent Road a little, and pulling down the preſent old Bridge.	500	0	0
5. Making and levelling 19 furlongs of Towing path 15 ft. broad each, covering the ſame with Gravel, fencing ditto with Poſt and Rail, and thorn Hedges, at per furlong £22. - -	418	0	0
6. Making and caſting a back Drain, 15 feet broad with one bank, in the bed of the preſent dead Water courſe to drain the Lands effectually on the North ſide of the Cut, from Slough, Salthill Chalvey Green &c. and erecting a Bridge over the ſame for the ſaid Water courſe 6 furlongs at £20 per furlong - -	120	0	0
Carried over,	8018	0	0

	£.	s.	d.
Brought over,	8018	0	0
7. To Two large ſwing Bridges, with brick Butments, Guard Piles, Poſt and Railing, for the uſe of the Common Roads interſected by the ſaid Cut, at £400 each -	800	0	0
8. The formation of a Baſon, on the Weſt ſide of the bridge, for the eaſe of Barges turning and paſſing one another; and for the landing and loading ſuch Goods as may be uſeful to Buckinghamſhire in general, if the ſame ſhall be eligible or proper. -	500	0	0
9. To 14 Acres of Land neceſſary for the ſaid Canal, the Towing-paths, ſide drains, and Baſon, at the average Price of £80 per Acre. -	1120	0	0
10. To temporary damage done to ſome Lands &c. &c. and partly to others by laying the Soil thereon. - -	200	0	0
Carried over,	10,638	0	0

	£.	s.	d.
Bronght over,	10,638	0	0
11. Extra Expences of Pumps, and labour, to throw out the Water in the bottom part of the Works, and Cut; and other neceſſary diſburſements	362	0	0
	£.11,000	0	0

In this Eſtimate, the Dimenſions and ſize of every Part are put upon a large and moſt complete Scale. — If the two other Cuts, on the Berks ſide, propoſed to the Commiſſioners, and are the ſubject of diſcuſſion in my Report, were to be executed of the ſame Dimenſions and meaſurements; and if the whole length of the ſaid two Cuts, (taken together,) are conſidered; and the two Pound Locks of equal capacity, tho' of leſs Pen, were eſtabliſhed, together with the two Weirs and Dams acroſs the Bed of the River, as neceſſary to each reſpectively; — The whole Coſts of ſuch Works, could not be leſs, (compared to this,) than £20,000.

ROBERT MYLNE Engineer.